AUGUSTA WATER DISTRICT
CROSS CONNECTION CONTROL PROGRAM
August 3, 1982
As approved by the State of Maine Department of Human Services
For more information, contact Chris Kelley at 622-3701.

What is a cross connection anyway? A cross connection occurs when a drinking water supply pipe connects to a non-drinking water supply source or pipe. An example of this is a connection with a residential home. You may not think of your home as having hazards to a water supply, but if you have a hose that has a submerged end in a kiddie pool or a carwash bucket, then you've created a cross connection. If a watermain broke, the potential exists for a suction event to occur. This means that water in your kiddie pool or carwash bucket could be drawn into the water system. Once there, the contamination could spread quickly to thousands of people. This is a very serious concern of all water utilities. We can treat water, but we need to continue to protect it once its in hundreds of miles of water pipes, storage tanks and people's homes.
Another example is home photo developing labs. If you had a water connection into a sink full of chemicals, you've created a hazardous connection that needs to be protected with a backflow preventer.
Other examples of cross connections:

- dentist's offices
- schools (janitor buckets, clean-out hoses)
- fire stations (sometimes trucks are not filled with public water supply water)
- hospitals
- mortuaries

How can I prevent backflow from occurring? Backflow preventers (cross connection control devices prevent water from moving backwards into the water system through combinations of check valves or hydraulic breaks) can reduce this risk and protect our customers from widespread contamination. Some horror stories have been reported across the country which have involved backflow from dentist's offices, funeral homes and wastewater treatment plants. For your neighbors' and your own protection, please maintain your backflow devices as required!

Cross connections with public water systems can be hazardous, cause the District to violate the Safe Drinking Water Act and create a liability issue. For these reasons, laws govern the ability of our customers to connect to our water system, for our protection and yours. If you have any questions concerning the District's cross connection control program, feel free to call us during normal business hours (7:00 am to 4:00 pm, Monday through Friday) at 622-3701.

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CROSS-CONNECTION CONTROL PROGRAM

I. PURPOSE

Cross-connections between a potable water system and non-potable sources of contamination represent a threat to public health. This program is designed to maintain the safety and potability of the water in the supply system by preventing the introduction, by backflow, of any foreign liquids, gases or other substances into the supply system.

II. AUTHORITY

This program derives its enforceability from Title 22 MRSA, c. 601. Subchapter 2, Section 2612 (5), Maine Department of Human Services Cross-Connection Rules 10-144ACMR226. In addition authority arises from the Rules and Regulations as published by the Augusta Water District, rule number 11, and as approved by the Public Utilities Commission of the State of Maine and from provisions of the Occupational Safety and Health Act, and the Maine State Plumbing Code Part I 10-144ACMR238.

III. DEFINITIONS

A. BACKFLOW

The flow of water or other foreign liquids, gases or other substances into the distribution system of a public water supply from any source other than the intended.

B. BACKFLOW PREVENTER

A device to prevent backflow.

1. Air Gap

A physical separation sufficient to prevent backflow between the free flowing discharge end of the potable water system and any other system.

2. Atmospheric Vacuum Breaker

A device which prevents back-siphonage by creating an atmospheric vent where there is either a negative pressure or sub-atmospheric pressure in a water system.

3. Backflow Preventer with Intermediate Atmospheric Vent

A device having two check valves separated by an atmospheric vent.

4. Double Check Valve

A device having two, weight or spring loaded, bronze faced with soft rubber disc check valves, with shut-off valves and test cocks for periodic testing.

5. Hose Bibb Vacuum Breaker

A device which is permanently attached to a hose bibb and which acts as an atmospheric vacuum breaker.

6. Pressure Vacuum Breaker

A device containing a spring-loaded check valve and a spring loaded atmospheric vent which opens which pressure approaches atmospheric. It contains valves and fittings which allow the device to be tested.

7. Reduced Pressure Principle Backflow Preventer

An assembly of check valves and a reduced pressure zone which spills water to the atmosphere in event of the failure of the check valves. It has valves and fittings which allow the device to be tested.

C. BACK SIPHONAGE

Backflow resulting from negative or less than atmospheric pressure in the water system.

D. BACK-PRESSURE

A condition in which the owner's system pressure is greater than the supplier's system pressure.

E. CONTAINMENT

A method of backflow prevention which requires a backflow preventer at the water service entrance.

F. CROSS-CONNECTION

Any connection or structural arrangement between a public or consumer's potable water system and any non-potable source of system through which backflow can occur.

G. DEPARTMENT

State of Maine Department of Human Services

H. DISTRICT

Augusta Water District

I. FIXTURE ISOLATION

A method of backflow prevention in which a backflow preventer is located to correct a cross-connection at an in plant unit rather than at the water service entrance.

J. OWNER

Any person who has legal title to, or license to operate or habitat in, a property upon which a cross-connection inspection is to be made or upon which a cross-connection is present.

K. PERMIT

A document issued by the Department with the approval of the District which allows the use of the backflow preventer.

L. WATER SERVICE ENTRANCE

That point in the owner's water system beyond the sanitary control of the supplier. This will usually be the outlet end of the meter and will always be before any unprotected branch.

IV. DEGREE OF HAZARD AND APPROVED DEVICES

The District recognizes that varying degrees of hazard are caused by different cross-connections. The devices which are permitted for use in each class of hazard and a description of the classes are as follows. A list of manufactured approved devices is available at the District. Maine Water Utilities Association list of potentially hazardous situations will be utilized for classifications purposes.

A. CLASS I LOW DEGREE OF HAZARD

If backflow were to occur, the resulting health significance would be limited to minor changes in the esthetic quality such as taste, odor or color. The foreign substance must be non-toxic and non-bacterial in nature with no significant health effects. The allowed devices are: Air gap, non-pressure type vacuum breaker, pressure type vacuum breaker, double check valve assembly and reduced pressure principle device.

B. CLASS II MODERATE DEGREE OF HAZARD

If backflow were to occur, the resulting effect on the water supply would be significant changes in the esthetic qualities. The foreign substances must be non-toxic to humans either in short or long term exposure. The allowed devices are: Air gap, pressure type vacuum breaker, double check valve assembly and reduced pressure principle devices.

C. CLASS III HIGH DEGREE OF HAZARD

If backflow were to occur the resulting effect on the water supply could cause illness or death if consumed by humans. The allowed devices are: Air gap and reduced pressure principle devices.

V. ADMINISTRATION

A. PROGRAM

1. Developed and maintained by the District.

2. Approved by State of Maine Department of Human Services.

3. Records shall be kept by the District for five years.

B. INSPECTION

1. Made during normal working hours unless otherwise arranged with the owner.

2. The owner shall allow his property to be inspected for possible cross-connections and for the testing of backflow prevention devices.

3. When applying for a new service the owner shall state the nature of the establishment to be served and inform the District if there are any possible cross-connections existing or proposed. Prior to activation of all new water services and new construction including residential services, compliance with this program and with the Maine State Plumbing Code shall be mandatory.

4. Whenever existing systems are modified, the District shall be informed by the owner. The District shall be informed of any malfunctioning backflow devices.

5. After inspection of plans or premises the District shall inform the owner by written notice of any cross-connections or malfunctioning devices, suggest ways of correcting the problem and set a time limit of 30 days for the correction to be made.

6. If the District determines at any time that an immediate threat to the public health exists service shall be terminated immediately.

7. Frequency

a. Industrial - shall be inspected at least every three years.

b. Commercial - shall be inspected at least every three years.

c. Dwellings with more than 4 apartments - shall be inspected as necessary.

d. Residential - shall be inspected as necessary.

8. Owners of dwellings with four or less apartments shall be encouraged to install backflow preventers on hose bibbs and shall be warned of possible hazards. If a cross-connection is present the owner will be required to install a backflow preventer at the service entrance.

9. The Department reserves the right to inspect all cross-connections. The owner and/or District shall comply with any required changes as a result of the inspections.

C. PERMITS

1. No cross-connections shall be allowed unless issued a permit by the Department specifically for that cross-connection and on recommendation by the District.

2. The owner shall apply for a permit on forms supplied by the District.

3. Permits will only be issued for a protected cross-connection that is deemed necessary and cannot be eliminated.

4. The permit shall state:

a. Degree of hazard

b. Frequency of testing

c. Type, model make and serial number of the backflow preventer.

5. Permits are non-transferable.

6. Any change in the degree of hazard or replacement of the device will require a new permit.

7. Permits will be renewed every five years.

8. The owner shall follow the provisions of the Augusta Water District's program and the Department of Human Services' rules regarding cross-connections if a permit is issued.

9. Any private well or other source of supply shall not be cross-connected to the District's distribution system unless approved by the Department.

D. TESTING

1. The testing, inspection and maintenance of approved devices shall be the responsibility of the owner.

2. Frequency of testing*:

Device	**Testing Frequency**	**District Present**
RPZ	6 months	6 months
Double Check	1 month	6 months

* *or as determined and stated on the permit.*

3. The District reserves the right to charge a reasonable free for testing these devices if or when the frequency, due to the quantity of these devices, is such that it becomes financially burdensome to the District.

4. If a device fails a test the District must be notified immediately.

5. Malfunctioning devices must be repaired immediately. If removal is necessary, service must be shut down. It is mandatory that a spare parts kit be on the premises.

6. The device is to be retested after maintenance.

E. INSTALLATIONS

1. The owner after being informed by written notice from the District shall, at his expense, install a backflow preventer listed and approved by the Department and the District, on his premises.

2. The manner of installation shall be according to manufacturer's specifications and approved by the District.

3. Pit installations are strongly discouraged and must have Departmental approval before a permit is issued.

4. If the district requires the supply to be protected by containment the owner shall install the backflow preventer as close as possible to the outlet of the meter or the service entrance and shall be responsible for the water quality beyond the outlet end of the device.

5. Whenever a backflow preventer is remote to the service entrance, all branches prior to the backflow preventer must have backflow prevention devices.

6. Installation of devices should allow for peak demand and fire flows. If the device will be subject to hot water a backflow prevention device that can withstand the maximum temperatures expected must be installed. Please note that some manufactured devices will accept greater temperatures than others.

8. In situations where the water supply cannot be interrupted to allow for testing or repair of the backflow preventer, the owner must supply an additional device appropriate to the degree of hazard. A bypass is not allowed around any backflow preventer unless a backflow preventer is installed on the bypass piping.

F. EXEMPTIONS

1. Devices not requiring permits include:

   a. Hose bibbs which are only potential cross-connections.

   b. Below the rim outlets which can be replaced by a gooseneck device.

   c. Toilets with antisiphon ballcocks.

   d. Any fixture with a built in atmospheric vacuum breaker which cannot be bypassed.

   e. "Pop-up" irrigation systems protected by a double check valve assembly with an intermediate atmospheric vent installed at least 12 inches above ground level.

f. Irrigation systems with heads permanently elevated at least 12 inches above ground level shall be protected by a double check valve assembly with an intermediate atmospheric vent installed at least 12 inches above the ground.

g. Industrial boilers that do not contain toxic chemicals.

2. Any existing backflow preventer in service at the time this program goes into effect shall be allowed to continue in service unless:

a. The District or Department considers the condition of any portion of the device to be such that replacement shall be a backflow preventer of the appropriate classification and a permit shall be issued.

b. The device protecting the cross-connection is inadequate for the degree of hazard.

3. The District or owner may receive one or more exemptions to this regulation from the Department so long as the exemption presents no unreasonable risk to Public health and viable alternatives are not available. Any such exemption will be granted on a case-by-case basis and shall not be considered precedent setting.

4. An exemption shall not alter the degree of hazard of the cross-connection and shall not exclude the use of some appropriate anti backflow device not necessarily assigned to the particular degree of hazard assigned to the cross-connection.

G. COMPLIANCE

1. Failure to comply with these regulations either by neglect to complete the application, procure or install the proper device or repair a malfunctioning device may lead to termination of service.

2. First notice shall be the letter of inspection.

3. Second notice shall inform the owner in writing of any failure to comply with the first notice and be given an additional 15 days to comply.

4. Final notice shall be a written notice of service termination to take place within 10 days.

5. Re-establishment of service before the installation of a backflow preventer may be allowed by the District after an agreement with the District, Department and owner has been made indicating the intention of the owner to comply and a compliance schedule is set up.